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**Buckley**

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(54) **SECURITY DEVICE WITH A FULL LENGTH LENS**

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(71) Applicant: **Honeywell International Inc.**,  
Morristown, NJ (US)

(58) **Field of Classification Search**

CPC ..... *G01J 5/0025*; *G01J 5/34*; *G02B 1/041*;  
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See application file for complete search history.

(72) Inventor: **Mark C. Buckley**, Camino, CA (US)

(56)

**References Cited**

(73) Assignee: **HONEYWELL INTERNATIONAL INC.**, Morristown, NJ (US)

**U.S. PATENT DOCUMENTS**

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

4,795,908 A \* 1/1989 Morimoto ..... *G08B 13/19*  
250/342  
5,393,978 A \* 2/1995 Schwarz ..... *G08B 19/005*  
250/342  
2006/0267566 A1\* 11/2006 Williams ..... *H05B 37/0218*  
323/282

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\* cited by examiner

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*Primary Examiner* — Mark R Gaworecki

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(74) *Attorney, Agent, or Firm* — Husch Blackwell LLP

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(52) **U.S. Cl.**

CPC ..... *G01J 5/0025* (2013.01); *G01J 5/34*

(57)

**ABSTRACT**

A security device is disclosed, wherein the security device includes a Fresnel lens covering the entire face of the device, a housing, and a pyroelectric detector. The center portion of the Fresnel lens, which contains the Fresnel lens elements, is molded flat, its edges are molded in the final installed form, and its edges contain appendages that secure the lens on the device so there are no gaps between the lens and the device.

**16 Claims, 11 Drawing Sheets**

